Assignment - 4

Q-1) Answer the Following

1) Evaluate $\begin{vmatrix} x+y & x \\ x & x-y \end{vmatrix}$

2) If $A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$ then find **adj. A**

3) $A = \begin{bmatrix} 0 & 4 & 3 \\ 1 & -3 & -3 \\ -1 & 4 & 4 \end{bmatrix}$ then prove that $A^2 = I$

4) If $A = \begin{bmatrix} 1 & 2 & -2 \\ 1 & -1 & 3 \\ -1 & -1 & 2 \end{bmatrix}$ then find $A^2 + 2A - I$

5) Solve the following equations by Cramer's Rule:

$x + 2y + 3z - 14 = 0$
$2x + y + z - 7 = 0$
$5x + 2y + z - 12 = 0$

6) If $A = \begin{bmatrix} 1 & 2 & 3 \\ 0 & -2 & 1 \\ 2 & 3 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & -1 & 4 \\ 1 & -3 & 2 \\ -1 & 3 & 2 \end{bmatrix}$ then show that $(AB)^T = B^T A^T$

7) Find inverse of the matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & -8 \\ 6 & -3 & 0 \end{bmatrix}$

8) Solve the following equations by Cramer's Rule:

$2x + 8y = 3xy$
$4x + 12y = 5xy$